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BAQ Engineering Services Division

Company Name:	AEC Pellet 1 USA LLC	Permit Writer:	Stephanie L. White
Permit Number:	1000-0039-CA	Date:	DRAFT

EXPEDITED REVIEW

DATE APPLICATION RECEIVED: December 10, 2014

FACILITY DESCRIPTION AEC Pellet 1 USA LLC proposes to construct a wood pellet manufacturing facility in the town of Winnsboro, which is located in Fairfield County. The facility will be designed for an annual production rate of approximately 530,000 tons and a maximum hourly production rate of 71 tons. The owner/operator has requested federally enforceable limits to avoid the requirements of S.C. Regulation 61-62.5, Standard No. 7 – Prevention of Significant Deterioration and the HAP major source thresholds for S.C. Regulation 61-62.70 – Title V Operating Permit program. The facility will require a Title V operating permit due to the potential of criteria pollutants to exceed 100 tons per year. The SIC code is 2499 for Wood Products, Not Elsewhere Classified, and the NAICS code is 321999 for All Other Miscellaneous Wood Product Manufacturing.

PROJECT DESCRIPTION The process will consist of a Woodyard (Emission Unit 01), which receives and stores logs, wood chips and bark. The logs are delivered to the site and debarked before going to chippers. The chipped wood is stored in two silos (IDs S1 and S2), which will be equipped with two bin vent filters (IDs BV1 and BV2) that will be used to reclaim particulate materials; therefore they are not considered as add-on control devices, since they will be inherent to the process.

The bark from the logs delivered to the facility will be used along with bark delivered from offsite as combustion fuel in two rotary dryers at Emission Unit 02 (IDs D1 and D2) that will dry the wood chips. The dryers are rated at 80 million BTU/hr each and will use natural gas as fuel during startup. The rotary dryers will be equipped with a wet electrostatic precipitator (CD-WESP) for particulate control and a 78.4 million BTU per hour regenerative thermal oxidizer (CD-RTO) for control of criteria pollutants, HAPs, and TAPs. Propane may be used as a backup fuel for natural gas at the thermal oxidizer with a limit of 20% of the furnace capacity. Water from the wet electrostatic precipitator will be recycled, and solids recovered from the recycled water will be added to the bark and combusted in the rotary dryers. The drying area will have four dried chip silos (IDs S3 through S6), which will be equipped with bin vent filters (IDs BV3 through BV6), which are inherent to the process and are not considered as add-on control devices.

The dried chips will be sent to seven pelletizing lines in the Pelletizing Area (Emission Unit 03), where the chips are converted to pellets. Each line consists of a hammermill with a fabric filter (inherent to the process), two pellet mills, and one pellet cooler with a cyclone (inherent to the process). The Pelletizing area will emit gases that will be routed to the regenerative thermal oxidizer in the drying area. Pneumatic fines from the process will be captured in two filters that are inherent to the process. A baghouse will be installed at the process building exhaust (CD-BH1) as an add-on device for control of particulates.

The pellets will be sent to a Storage/Loadout area (Emission Unit 04), where four pellet storage silos (IDs S7 through S10), two loadout silos (IDs S11 and S12), and two telescopic sleeves (IDs LOAD1 and LOAD2) will be used for railcar loading. The Storage/Loadout silos will each be equipped with a bin vent filter (IDs BV7 through BV12) to reclaim process materials. The filters are inherent to the process. An add-on baghouse (CD-BH2) will be installed at the railcar loading station. A 500 hp emergency generator will be installed and designed to use ultra-low sulfur (0.15%) fuel oil.

SOURCE TEST REQUIREMENTS The Regenerative Thermal Oxidizer (CD-RTO) is required to source test to show compliance with the manufacturer's guaranteed destruction removal efficiency of at least 95%, to establish operating ranges for the combustion chamber outlet temperature, and to confirm emission factors for VOCs, PM, PM₁₀, PM_{2.5}, NO_x, CO, Acetaldehyde, Formaldehyde, HCL, and Methanol.

The Wet Electrostatic Precipitator (CD-WESP), via the stack at CD-RTO, will be source tested to establish operating ranges for the secondary voltage and secondary amperage. Particulate emission factors from the WESP will not be required since the WESP exhausts through the regenerative thermal oxidizer.

Baghouses CD-BH1 and CD-BH2, as well as all bin vent filters (BV1 through BV12), cyclones at the pellet coolers PC1 – PC7, and fabric filters at the hammermills (IDs HM1 – HM7) and pneumatic fines return (IDs F1 and F2), will be required to test for PM, PM₁₀, and PM_{2.5} to confirm the emission factors established for the process design during construction permitting. The pressure drop ranges for the baghouses will be established during the source testing. All pounds per oven dried ton emission factors determined from source tests shall be based on US short tons.



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The requirement to conduct source testing at the bin vent filters, fabric filters, and cyclones may be waived if, prior to the commencement of operation, the owner/operator submits a manufacturer's guarantee to confirm the emission factors provided in the construction permit application, and the information is approved by the Engineering Services Division.

An initial VOC source test shall be performed at the baghouse at the Process Building Exhaust (CD-BH1), the Fines Collection System (F1 – F2), and the baghouse at the Storage/Loading Area for Railcars (CD-BH2) to confirm the estimated emissions at the process building and to estimate emissions fines collection system and storage/loading area for railcars.

EMISSIONS

Emissions from Storage and Handling Operations (Emission Unit 01):

The pollutants from the storage and handling operations at Emission Unit 01 are: PM, PM₁₀, PM_{2.5}, VOCs, formaldehyde (HAP (H), TAP (T), VOC (V)), acetaldehyde (H, T, V), and methanol (H, T, V). The particulate emissions estimates from two bin vent filters at the chip silos (IDs BV1 and BV2) are based on proposed design exit grain loadings of 0.02 grains/standard cubic feet for PM and PM₁₀, 0.015 grains/standard cubic feet for PM_{2.5}, and exhaust flow rates of 300 standard cubic feet per minute at each source. The efficiency of the bin vent filters at the chip silos was estimated at 99%. The efficiency was included in the uncontrolled emission rates for all bin vent filters and other equipment that are inherent to the process. The VOC and HAP emissions were derived from an internal memorandum from the Georgia Department of Natural Resources dated 1/29/13, with a subject of "Emission Factors for Wood Pellet Manufacturing", which recommended emission factors based on testing results from Georgia Biomass. The facility estimated that 40% of emissions would come from the chip pile/rechipper, 30% would be emitted from the bark pile, and 30% would be emitted from the process building. The facility provided particulate emissions from the chip and bark piles using an estimate from a US EPA Region 10 memorandum dated May 8, 2014, which stated an emission factor of 0.38 tons per acre-year from wind erosion of an apparent wood residue piles (0.087 pounds of PM per acre-hour). An estimate of 2.3 acres of wood residue piles was used in the calculations. The moisture content in the wood would result in minimal PM emissions. PM₁₀ was estimated as 50% of PM, while PM_{2.5} was estimated as 25% of PM.

Emissions from Dryers (Emission Unit 02):

The Drying area emissions are estimated based on a manufacturer's guarantee from MEC, Proposal No. D-0150-14-R1, dated December 22, 2014. The gases from the two rotary dryers are routed to the wet electrostatic precipitator and then to the regenerative thermal oxidizer. The guaranteed emissions include both control devices. The assumptions are: 100% softwood content and significant VOC destruction in the recycle stream. The recycle stream is a significant portion of the dryer exhaust that is re-routed to a "blend" chamber located immediately downstream of the combustion chamber for the purposes of eliminating VOCs when the stream is introduced to the combustion gases and reducing fuel consumption through the use of heated air as opposed to ambient air. The remainder of the exhaust is routed to the control devices. The amount of VOCs added to the combustion gases via the recycle stream is insignificant, and this amount was not considered in the emissions estimates. The facility is required to conduct source testing to confirm the VOC emissions. The exhaust from the hammermills and pellet coolers at Emission Unit 03 are also routed to the thermal oxidizer. The pollutants and guaranteed efficiencies are: PM, PM₁₀, PM_{2.5} (97.7% each); VOCs (95.7%); CO (85%); formaldehyde (95%).

The uncontrolled NO_x emissions from the dryers were estimated to be 2.7 pounds per ton of oven dried wood material, based on an emission factor for particleboard dryers from EPA AP-42, Volume 1, 5th Edition, Chapter 10.6.2-2 (rotary dryer, green, direct wood-fired, softwood). With a total throughput of 71 tons per hour and a design heat capacity of 80 million BTU per hour per dryer, the uncontrolled emissions would result in 1.19 pounds per million BTU (combined) from the dryers. The manufacturer's guarantee states that the dryers will emit 128.4 tons NO_x per year, which would result in 0.18 pounds per million BTU.

Particulate emissions from the bin vent filters at the four dried chip silos (IDs BV3 through BV6) are based on proposed design exit grain loadings of 0.02 grains/standard cubic feet for PM and PM₁₀, 0.015 grains/standard cubic feet for PM_{2.5}, and an efficiency of 99%. The proposed design exhaust flow rate is 300 standard cubic feet per minute at each source.

The following emissions were estimated using data in EPA AP-42, Volume 1, 5th Edition: condensable particulate matter (Table 10.6.1-1); SO₂ (Table 1.6-2); acetaldehyde (Table 10.6.2-3); methanol (Table 10.6.2-3); and hydrochloric acid (Table 1.6-3). The controlled emissions of acetaldehyde and methanol are estimated using an efficiency of 95% based on the manufacturer's guarantee for VOC control, and the hydrochloric acid efficiency is given a conservative estimate of 55% when compared with the recommended 70% efficiency in the memorandum from the Georgia Department of Natural Resources. These pollutants are emitted through the thermal oxidizer stack.



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Emissions from Pelletizing Area (Emission Unit 03):

The gases from the pelletizing area are routed to the regenerative thermal oxidizer that is used to incinerate the dryer gases at Emission Unit 02. These emissions are included in the guaranteed emissions from the proposal provided for the regenerative thermal oxidizer. The controlled particulate emissions from the two filters (IDs F1 and F2) at the fines collection system and pneumatic conveyer and the process building exhaust baghouse (CD-BH1) are estimated based on the proposed design exit grain loadings of 0.015 grains/standard cubic feet for PM and PM₁₀ and 0.005 grains/standard cubic feet for PM_{2.5}. The design efficiency for each filter is 99%. The exhaust flow rate at the pneumatic fines return is will be designed for 3,500 standard cubic feet per minute at each source. The exhaust flow rate from the process building exhaust will be designed for 7,500 standard cubic feet per minute.

Emissions from Storage/Loadout Area (Emission Unit 04):

The pollutants from the storage/loadout area are: PM, PM₁₀, and PM_{2.5}. The particulate emissions estimates from the six bin bent filters at the pellet and loadout silos (BV7 through BV12) are based on proposed design exit grain loadings of 0.02 grains/standard cubic feet for PM and PM₁₀, 0.015 grains/standard cubic feet for PM_{2.5}, and a proposed exhaust flow rate of 300 standard cubic feet per minute at each source. The efficiency of the bin vent filters at the chip silos is estimated at 99%. The controlled particulate emissions from the railcar loadout sleeve baghouse (CD-BH2) are based on the design exit grain loadings of 0.015 grains/standard cubic feet for PM and PM₁₀ and 0.005 grains/standard cubic feet for PM_{2.5}. The design efficiency is 99%. The exhaust flow rate is designed to be 2,000 standard cubic feet per minute.

Example Calculation of PM Emissions:

Controlled Railcar Loadout Sleeve Baghouse (CD-BH2):

PM = 0.015 grain/standard cubic feet x 2,000 standard cubic feet/minute x 1 lb/7000 grains x 60 minutes/hour = 0.26 lb/hour

Uncontrolled Railcar Loadout Sleeve Baghouse:

PM = 0.26 lb/hr/(1-0.99) = 26 lb/hr

Greenhouse Gas Emissions:

The facility provided emissions of greenhouse gases for this project. The potential emissions of greenhouse gases reported as CO₂e are greater than 100,000 TPY. No distinction was made between biogenic gases and non-biogenic gases. On June 23, 2014, the United States Supreme Court issued a decision that the EPA was not authorized to specify greenhouse gases as a pollutant that would establish applicability to the requirements of the Title V Operating Permit program or the Prevention of Significant Deterioration. The Court did establish that the EPA had the authority to regulate greenhouse gases. Until the EPA makes further revisions to regulations regarding greenhouse gas emissions, the Department will not require facilities to quantify these emissions for regulatory purposes.

FACILITY WIDE EMISSIONS		
Pollutant	Uncontrolled Emissions	Controlled/Limited Emissions
	TPY	TPY
PM	1,787	60
PM ₁₀	1,787	60
PM _{2.5}	1,427	53
VOC	2,382	220
SO ₂	18	18
NO _x	154	189
CO	333	50
Acetaldehyde (H, T, V)	34	2
Formaldehyde (H, T, V)	31	2
HCl (H, T)	13	6
Methanol (H, T, V)	34	2
Total HAP	112	12

OPERATING PERMIT STATUS

Within twelve months of commencement of operation, the facility will be required to submit a Title V operating permit application.



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REGULATORY APPLICABILITY REVIEW

Regulation	Comments/Periodic Monitoring Requirements
Section II.E - Synthetic Minor	<p>This regulation applies to the facility.</p> <p>The facility has the potential to emit greater than 250 tons per year of the following pollutants: PM, PM₁₀, PM_{2.5}, VOC, and CO. The facility also has the potential to emit greater than 10 tons per year of an individual Hazardous Air Pollutant (HAP) or a combination of 25 tons per year of any group of HAPs.</p> <p>In order to avoid applicability to the requirements of Standard No. 7 – Prevention of Significant Deterioration, and the major HAP applicability for Title V operating permit program, the facility has implemented federally enforceable limits for the following pollutants:</p> <ul style="list-style-type: none"> ▪ Regulated NSR pollutant emissions to less than 250 tons per year ▪ Individual HAP emissions to less than 10 tons per year ▪ Total HAP emissions to less than 25 tons per year
Standard No. 1	<p>This standard does not apply to the facility.</p> <p>The facility has no fuel burning operations. The dryers and regenerative thermal oxidizer are direct-fired sources, as opposed to indirect fired sources.</p>
Standard No. 3 (state only)	<p>The facility is subject to the requirements of this standard, which is Waste Combustion and Reduction.</p> <p>The regenerative thermal oxidizer, CD-RTO, is a source of waste combustion and reduction of VOC from the two dryers and the pelletizing area. For industrial incinerators (Section III.I), the opacity is limited to less than or equal to 20%, and the particulate matter emissions are limited to less than or equal to 0.5 lbs/million BTU. The capacity of the thermal oxidizer is 78.4 million BTU per hour.</p> <p>Since a non-hazardous, gaseous waste will be combusted in the incinerator, the Department will allow an exemption from the periodic source testing requirements in Section VIII and the operator training requirements of Section IX, of the standard. There are no periodic monitoring requirements for non-hazardous, gaseous waste materials in the standard.</p>
Standard No. 4	<p>The facility is subject to the requirements of this standard, which is Emissions from Process Industries.</p> <p>Each emission source is subject to an opacity limit of less than or equal to 20%, since the facility will be constructed after December 31, 1985. Weekly visual inspections shall be conducted to monitor opacity at all sources.</p> <p>At Emission Unit 02 (Drying Area), the pellet production rate is 71 tons per hour. The dried pellets have a moisture content of 10%. The wet wood (prior to entering the dryers) contains a moisture content of 50%. The maximum process rate is calculated as follows: $71 \text{ tons/hour} * (100\% - 10\%) / (100\% - 50\%) = 128 \text{ tons/hour}$</p> <p>At Emission Unit 01 (Woodyard), the maximum process weight rate is 176 tons per hour based on the following information: 128 tons per year enter the dryer at a maximum rate of 6000 hours per year. The wood consists of 10% park, which results in the following formula: $128 \text{ tons/hr} * 7,500 \text{ hours/yr} / 6000 \text{ hours/yr} * (100\% + 10\%) = 176 \text{ tons/hr.}$</p> <p>The maximum process weight rate at Emission Units 03 and 04 is 71 tons per hour.</p> <p>The uncontrolled emissions at the dryers at Emission Unit 02 (IDs D1 and D2) and the process building at Emission Unit 03 (ID BLDG) exceed the maximum allowable emission rate; therefore,</p>



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Regulation	Comments/Periodic Monitoring Requirements
	<p>control devices are required to meet the limit. The control devices are a wet electrostatic precipitator for the dryers (CD-WESP) and a baghouse for the process building (CD-BH1). The uncontrolled emissions at these sources are also greater than 100 tons per year; therefore the facility will be required to monitor per the more stringent requirements of 40 CFR 64 – Compliance Assurance Monitoring; however, until a CAM plan is submitted, the facility will be subject to the general monitoring requirements for the affected control devices.</p> <p>Each field of the wet electrostatic precipitator (CD-WESP) shall conduct monitoring of the secondary voltage and secondary amperage each shift. The wet electrostatic precipitator exhausts through the regenerative thermal oxidizer (CD-RTO). The thermal oxidizer is also subject to the opacity and PM requirements of Standard No. 4.</p> <p>Visual inspections shall be performed at all sources on a weekly basis. The baghouse pressure drops at CD-BH1 and CD-BH2 (control device for the loading area at emission Unit 04) will be monitored once per shift. Weekly operation and maintenance check shall be performed for the baghouses and all bin vent filters.</p>
Standard No. 5	<p>This standard does not apply to the facility.</p> <p>The facility is not an existing process described under one of the parts of Section II of Standard 5, since the facility did not commence operation before July 1, 1979.</p>
Standard No. 5.1 (state only)	<p>The facility is subject to the requirements of this standard, which is Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds, since the net VOC emission increase exceeds 100 tons per year, and the construction permit would be issued on or after June 25, 2004.</p> <p>A BACT analysis was conducted, and it was determined that BACT for the dryers, hammermills, pellet mills, and pellet coolers is a regenerative thermal oxidizer with a control efficiency of 95%. The sources will be routed to thermal oxidizer CD-RTO for VOC destruction.</p>
Standard No. 5.2	<p>The facility is subject to the requirements of this standard, Control of Oxides of Nitrogen (NO_x), since it is being constructed after June 25, 2004.</p> <p>The dryers at Emission Unit 02 (IDs D1 and D2) are the affected sources. The NO_x emission limit is based on the limit established for fuel combustion sources not otherwise specified, which is low NO_x burners or equivalent technology capable of achieving 30% reduction from uncontrolled levels. Each dryer has a design heat capacity of 80 million BTU per hour. With an uncontrolled estimate of 2.7 pounds NO_x per ton of oven dried wood material from the dryers (from AP-42, Chapter 10.6.2-2) and a throughput of 71 tons per hour, the uncontrolled emissions would result in 1.19 pounds per million BTU (combined) from the dryers. A 30% reduction would result in a limit of 0.83 pounds per million BTU (combined). The manufacturer's guarantee states that the dryers will emit 128.4 tons NO_x per year, which would result in 0.18 pounds per million BTU, which is below the required limit. Source testing will be conducted to confirm the emission factors provided in the guarantee.</p> <p>CD-RTO is not subject to the standard because it is acting as a control device, per Section I (b)(4).</p>
Standard No. 7	<p>The facility is not classified as one of the 28 categories for which the potential to emit would exceed 100 tons per year for applicability to the requirements of Standard 7. The follow uncontrolled emissions exceed the 250 ton per year major source threshold established for other categories: PM, PM₁₀, PM_{2.5}, VOC, and CO. In order to avoid the requirements of Standard 7, the facility established synthetic minor limits for these pollutants so that they will be below 250 tons per year.</p>
61-62.6	<p>The facility is subject to the requirements of this standard.</p>



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Regulation	Comments/Periodic Monitoring Requirements
	The fugitive PM emissions from this facility shall be minimized.
40 CFR 60 and 61-62.60	<p>The facility will become subject to the New Source Performance Standards (NSPS), specifically Subpart IIII - Standards Of Performance For Stationary Compression Ignition Internal Combustion Engines.</p> <p>The facility will install a diesel-fired emergency generator, ID EG, at Emission Unit 04.</p> <p>As indicated in paragraphs (a)(2) and (a)(3) of 40 CFR §60.4200, the requirements of this subpart are applicable to owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:</p> <p>(a)(2)(i) Manufactured after April 1, 2006, and are not fire pump engines, or</p> <p>(a)(2)(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.</p> <p>The emergency generator will use only ultra-low sulfur fuel oil and will have a non-resettable hour meter installed prior to the commencement of operation.</p> <p>The facility is not subject to Subpart Ea- Standards of Performance for Incinerators because the definition of an incinerator in Section 60.51 of the subpart means any furnace used in the process of burning solid waste for the purpose of reducing the volume of the waste by removing combustible matter. The incinerator at the facility will burn gases.</p>
40 CFR 61 and 61-62.61	The facility does not meet the requirements to become subject to any of the National Emission Standards for Hazardous Air Pollutants (NESHAP), since there are no affected sources.
40 CFR 63 and 61-62.63	<p>The facility will become subject to the National Emission Standards for Hazardous Air Pollutants for Source Categories (NESHAP), specifically Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines (RICE).</p> <p>The diesel-fired emergency generator, ID EG, at Emission Unit 04 will be subject to the requirements of Subpart ZZZZ. As indicated in section 40 CFR 63.6585, facilities that own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.</p> <p>The facility was evaluated for applicability to the requirements of Subpart DDDD, National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products. This subpart applies to facilities that manufacture plywood and/or composite wood products by bonding wood material (fibers, particles, strands, veneers, etc.) or agricultural fiber, generally with resin under heat and pressure, to form a structural panel or engineered wood product. The facility must also be located at a major source of HAP emissions.</p> <p>Since the facility is subject to federally enforceable limits to avoid being a major source of HAP emissions, and the facility does not bond the wood material with resin under heat and pressure, it is not subject to the requirements of Subpart DDDD.</p>
61-62.68	<p>The facility is not subject to the requirements of this regulation.</p> <p>This facility does not store or use chemicals subject to 112(r) above the threshold quantities.</p>
40 CFR 64	<p>Certain emission units are subject to the requirements of this regulation, which is Compliance Assurance Monitoring (CAM).</p> <p>According to 40 CFR §64.2, Section (a) - General applicability, this subpart is applicable if the</p>



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Regulation	Comments/Periodic Monitoring Requirements
	<p>following conditions are met for emission units at major sources:</p> <p>(a)(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof);</p> <p>(a)(2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and</p> <p>(a)(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.</p> <p>The two dryers at Emission Unit 02 (IDs D1 and D1) and the process building exhaust at Emission Unit 03 (ID BLDG) are subject to Standard 4 for PM emissions. The emission units use control devices to achieve compliance with the emission limits. The uncontrolled emissions at these sources are greater than 100 tons per year; therefore the requirements of CAM are applicable.</p> <p>Operational ranges shall be established during source testing for the secondary voltage and secondary amperage at the wet electrostatic precipitator (CD-WESP) at the dryers. The pressure drop ranges shall also be established for the process building exhaust baghouse (CD-BH1).</p> <p>The affected sources are not considered to be large CAM sources, since the post-control device emissions are less than the major source thresholds; therefore, a CAM plan is due at the time of the first operating permit renewal.</p> <p>The dryers (IDs D1 and D2) at Emission Unit 02 are subject to the requirements of Standard No. 5.1 – Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds, and is required to install meet a 95% destruction rate as BACT; however, this is a state-only requirement, and is not a federally enforceable limit. The requirements of CAM do not apply to the dryers.</p> <p>The facility has requested federally enforceable limits to remain below the HAP major source thresholds; however, CAM is not applicable for long-term mass accumulation limits (tons per year); therefore the requirements of CAM do not apply for sources that emit HAP emissions.</p>

MODELING REVIEW

Regulation	Comments/Periodic Monitoring Requirements
Standard No. 2	<p>This standard applies to the facility.</p> <p>The facility has demonstrated compliance with the requirements of Standard 2. The most recent modeling summary is dated December 23, 2014.</p>
Standard No. 7.c	<p>The facility is not subject to the requirements of this standard.</p> <p>There are no PSD minor source baselines that have been established for PM₁₀, SO₂, and NO₂ in Fairfield county.</p>
Standard No. 8 (state only)	<p>This standard applies to the facility.</p> <p>The facility has demonstrated compliance with the requirements of Standard 8. The most recent modeling summary is dated December 23, 2014.</p>



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Standard 5.1 BACT Determination

The facility submitted a Best Available Control Technology (BACT) determination for the wood fired dryers (IDs D1 and D2 at Emission Unit 02), hammermills (IDs H1 through H7 at Emission Unit 03), pellet mills (IDs PM1 through PM14 at Emission Unit 03), and pellet coolers (IDs PC1 through PC7 at Emission unit 03).

The facility reviewed the EPA's Reasonably Available Control Technology (RACT)/Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) Clearinghouse database to identify control technologies for controlling VOC emissions. The following categories were reviewed:

- Industrial-size boilers/furnaces – biomass
- Plywood manufacturing (including plywood dryers, plywood presses, and other plywood manufacturing processes)
- Particle and strand board manufacturing
 - Board manufacturing, material handling
 - Board press
 - Board manufacturing dryers
 - Miscellaneous particle and strand board operations
- Wood lumber kilns

The search yielded 85 listings and identified the following technologies:

- Regenerative Thermal Oxidizer with an efficiency range of 90% to 95%
- Catalytic Oxidation with an efficiency range of 25% to 90%
- Either Regenerative Thermal Oxidizer or Regenerative Catalytic Oxidation with an efficiency of 90%
- Biofilter with an efficiency of 75%

The top-down approach requires that the technology that has been determined to be the most efficient at removing VOCs must be installed unless it can be demonstrated that due to energy, environmental, or economic factors, the technology is not achievable. It was determined that BACT for the proposed process was a regenerative thermal oxidizer with 95% efficiency. The facility will install a regenerative thermal oxidizer to meet this efficiency to combust VOC emissions from the dryers, hammermills and pellet mills.

The facility went through the Top Down BACT Analysis of the identified control technologies and arrived at a Regenerative Thermal Oxidizer as BACT for the process with a DRE of 95%. The facility will be installing an RTO to control VOC emission from the affected equipment.

PUBLIC NOTICE

This construction permit will undergo a 30-day public notice period to establish synthetic minor limits in accordance with SC Regulation 61-62.1, Section II(N). This permit was placed on the SC DHEC Public Notice website on February 11, 2015. The comment period was open from February 11, 2015 to March 12, 2015.

ADDITIONAL PUBLIC PARTICIPATION

SUMMARY AND CONCLUSIONS

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.